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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,047	10/25/2000	Volker Schumacher	4898	9171

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EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT	PAPER NUMBER
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1754

8

DATE MAILED: 08/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/674,047

Applicant(s)

SCHUMACHER ET AL.

Examiner

Maribel Medina

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 June 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

#### **Claim Objections**

1. Claim 11 is objected to because of the following informalities: in line 1, "xodiation" should be changed to --oxidation--. Appropriate correction is required.

#### **Claim Rejections Withdrawn**

2. The rejections under 35 U.S.C. 112, second paragraph to claims 11-18; 35 U.S.C. 102(b) as being anticipated by US 4,973,457 (Kongshaug et al) to claims 11-12, 14-15, 16 and 18; and under 35 U.S.C. 103(a) as being unpatentable over Kongshaug et al to claims 13 and 17 have been withdrawn in view of the amendment to the claims, filed on Paper # 7 on 6/10/02.

#### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kongshaug et al in view of US 5,587,135 (Fetzer et al).

Kongshaug et al disclose a reactor for the catalytic oxidation of ammonia to nitrogen oxides comprising; a catalyst package comprising noble metal gauze, which usually comprises several noble metal gauzes and recovery gauzes for noble metal; and a heat exchanger (See col. 2, lines 36-40). In regards to the limitation of claim 11, that reads "and has a catalyst for the

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decomposition of  $N_2O$ " Kongshaug et al discloses that a metal or metal oxide catalyst which selectively decomposes  $N_2O$  after the catalyst package can be installed (See col. 3, lines 10-14).

In regards to claim 12, Kongshaug et al clearly discloses the use of a noble metal recovery gauze right after the noble metal gauze catalyst (See col. 2, lines 36-40). In regards to claims 14-15, it is disclosed in col. 3, line 34, the use of an adsorption tower after the heat recovery unit.

In regards to claim 16, the Kongshaug et al disclose a process for the catalytic decomposition of  $N_2O$  in a gas obtained in the preparation of nitric acid by catalytic (See col. 1, lines 6-23) oxidation of ammonia in a reactor as described above. In regards to claim 18, it is disclosed that the ammonia decomposition is effected at temperatures from 1100 K (837°C) to 1161 K (888°C) ( See Table 1) and pressure of 5 bars (See col. 3, line 65).

Kongshaug et al fail to disclose the  $N_2O$  decomposition catalyst used and how it is prepared.

Fetzer et al disclose a  $N_2O$  decomposition catalyst prepared by combining  $Cu Al_2O_4$  with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar (See claim 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the catalyst disclosed by Fetzer et al in the process and reactor of Kongshaug et al, since Kongshaug et al disclose that any known  $N_2O$  decomposition can be used and since Fetzer et al catalyst can be used in for the decomposition of  $N_2O$ .

In regards to claim 13, Kongshaug et al fail to disclose the height of the  $N_2O$  decomposition catalyst. However, it would have been obvious to one of ordinary skill in the art

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at the time the invention was made to have determined by experimentation the height of this catalyst in such as in the range from 2 to 50 cm, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 17, Kongshaug et al disclose a residence time in the range from 0.1 to 3 second for the  $N_2O$  decomposition, when no  $N_2O$  decomposition catalyst is used (See col. 4, lines 63-68). Kongshaug et al fail to disclose a residence time of less than 0.1s. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a residence time of less than 0.1 s, when a  $N_2O$  catalyst is used, since in col.3, lines 10-14, it is disclosed that "in order to reduce the residence time for the  $N_2O$  decomposition catalyst, a metal or metal oxide catalysts... can be installed". This clearly implies that the residence time will be lower than when no decomposition catalyst is used, a residence time value less than the 0.1 s.

In regards to new claims 19 and 20, Kongshaug et al disclose an absorption unit after the reactor, however, fail to disclose the use of a reduction unit for the selective catalytic reduction of nitrogen oxides. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a nitrogen oxide reduction unit after the absorption unit, to reduce the non-absorbed nitrogen oxides of effluent 9 (See col. 3, lines 35-39), since this a well known apparatus or unit to reduce nitrogen oxides. One of ordinary skill in the art would have been motivated to further treat any nitrogen oxides containing effluent in order to comply with environmental standards.

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**Response to Arguments**

5. Applicant's arguments filed on 6/10/02 have been fully considered but they are not persuasive. Applicants argue "According to this reference the amount of  $N_2O$  formed when performing the Ostwald process in a reactor can be reduced by providing a sufficient retention time for the product gas mixture at high temperature between the noble metal gauze catalyst and the heat exchanger. This leads to a decomposition of the  $N_2O$  formed, see column 3, lines 1 to 9. Only as an additional option it is stated that a catalyst for decomposing  $N_2O$  may be provided after the noble metal gauze catalyst, see column 3, lines 10 to 13. Thus the finding of this reference, is based totally different principle for decomposing  $N_2O$ ."

This argument is not convincing, since the reference clearly indicates that the  $N_2O$  catalyst can be installed in order to reduce the retention time. This clearly anticipates the instant apparatus and process for the use of said  $N_2O$  decomposition catalyst. Alternatively it would have been obvious to one of ordinary skill in the art at the time the invention was made to use or add the indicated catalyst to the reactor of Kongshaug et al in order to reduce the retention time and the size of the reactor.

**Conclusion**

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner Maribel Medina. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Examiner: Maribel Medina 

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August 20, 2002

  
WAYNE A. LANGEL  
PRIMARY EXAMINER